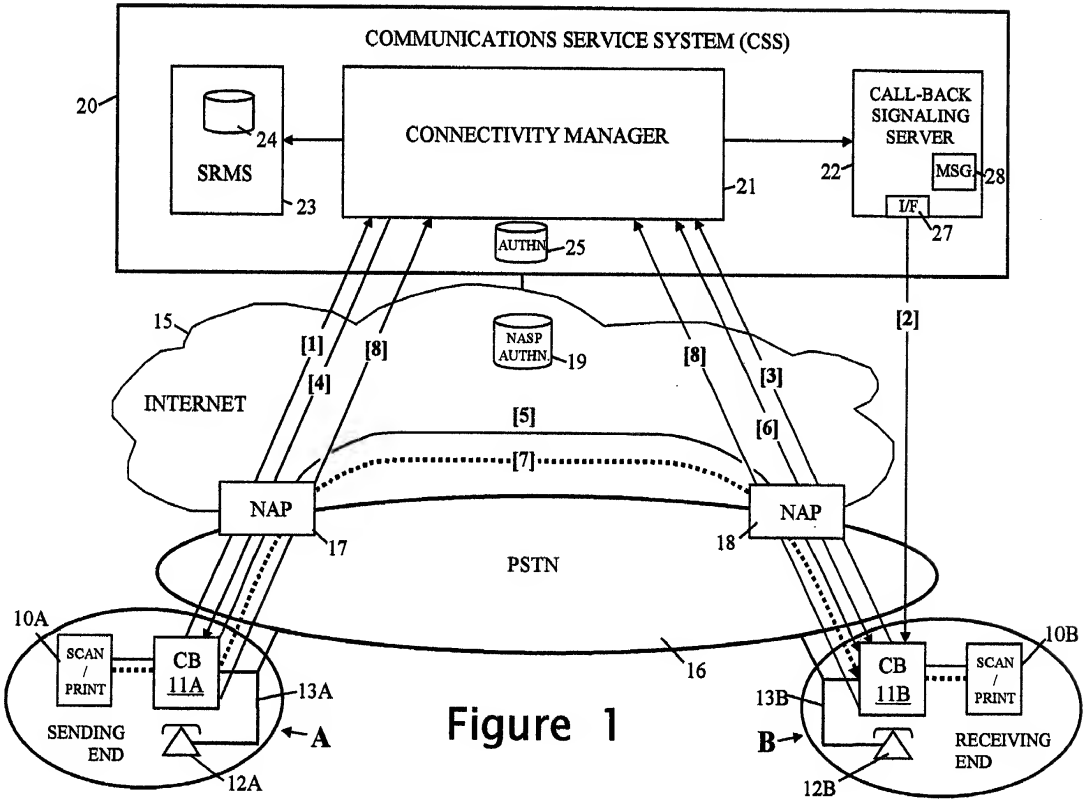
COMMUNICATIONS SERVICE SYSTEM (CSS)
20
SRMS
24
23
CONNECTIVITY MANAGER
21
CALL-BACK SIGNALING SERVER
22
MSG
28
I/F
27
AUTHN
25
15
INTERNET
NASP AUTHN
19
[1]
[2]
[3]
[4]
[5]
[6]
[7]
[8]
NAP
17
NAP
18
PSTN
16
10A
SCAN / PRINT
CB 11A
13A
SENDING END
A
12A
10B
CB 11B
SCAN / PRINT
13B
B
RECEIVING END
12B

Figure 1

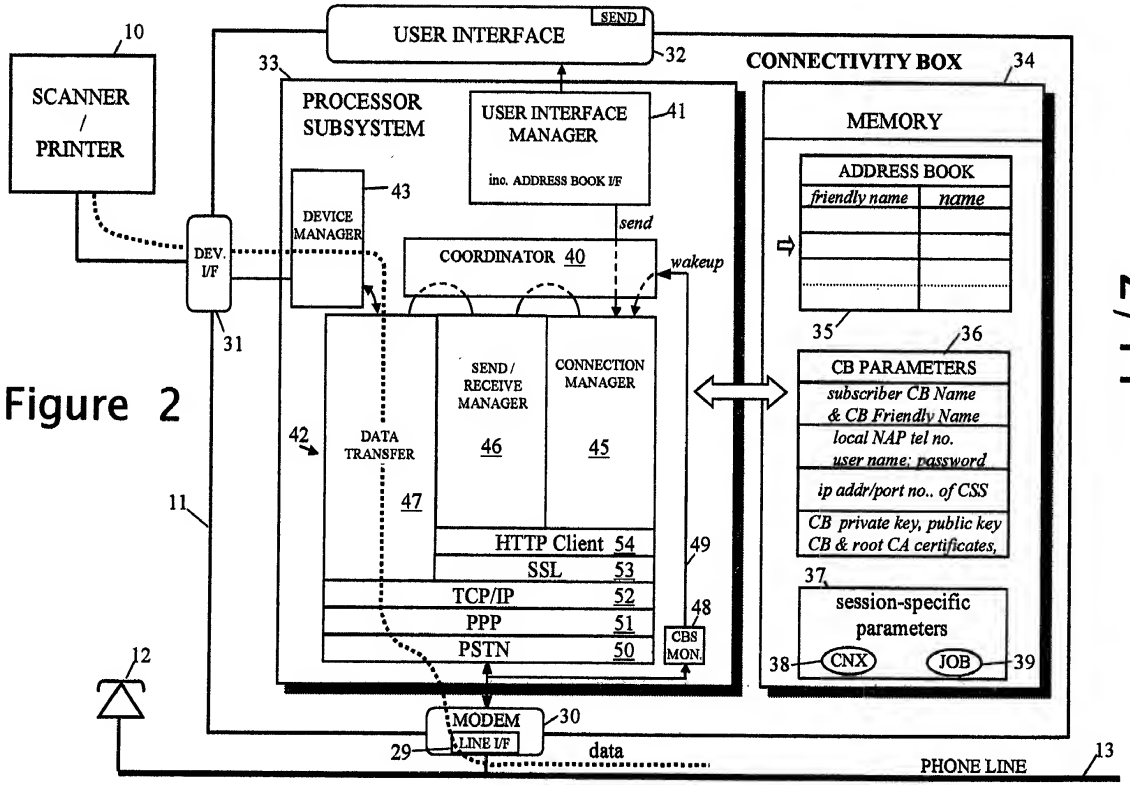
10
SCANNER / PRINTER
USER INTERFACE
SEND
32
33
PROCESSOR SUBSYSTEM
USER INTERFACE MANAGER
41
inc. ADDRESS BOOK I/F
CONNECTIVITY BOX
34
MEMORY
ADDRESS BOOK
friendly name
name
43
DEVICE MANAGER
DEV. I/F
31
send
COORDINATOR 40
wakeup
35
36
CB PARAMETERS
subscriber CB Name & CB Friendly Name
local NAP tel no. user name; password
ip addr/port no.. of CSS
CB private key, public key CB & root CA certificates,
SEND / RECEIVE MANAGER
46
CONNECTION MANAGER
45
42
DATA TRANSFER
47
11
HTTP Client 54
SSL 53
TCP/IP 52
PPP 51
PSTN 50
49
48
CBS MON.
37
session-specific parameters
38
CNX
JOB
39
12
MODEM
30
LINE I/F
29
data
PHONE LINE
13

Figure 2

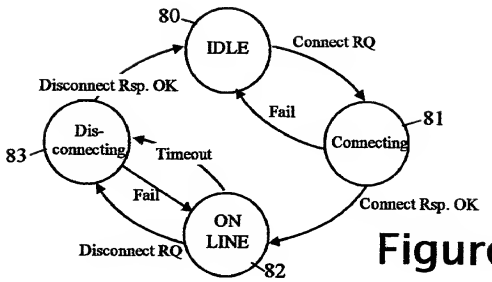

Figure 3

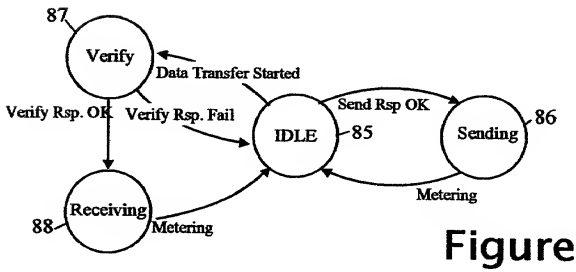

Figure 4

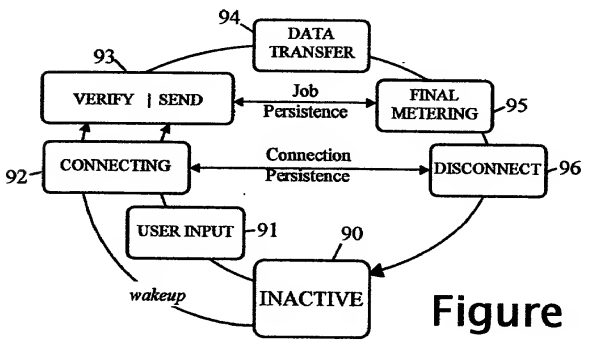

Figure 5

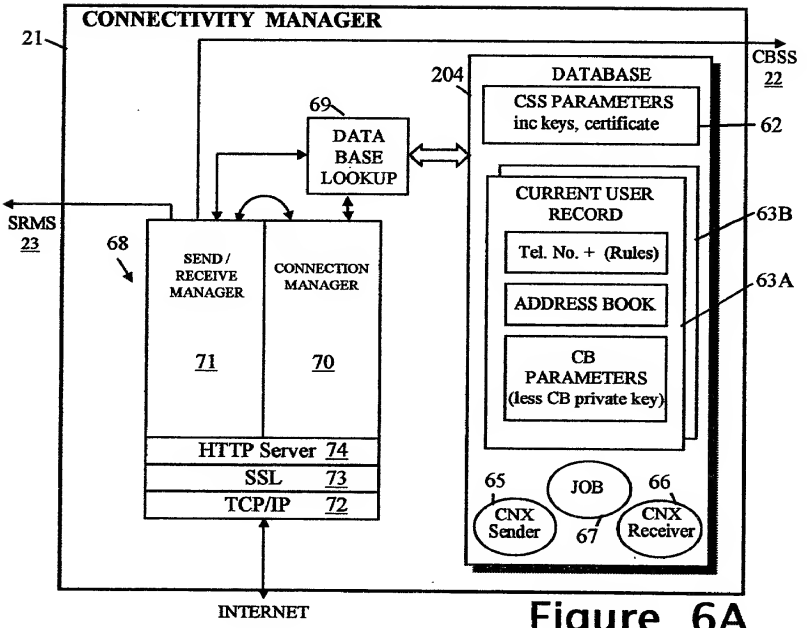

Figure 6A

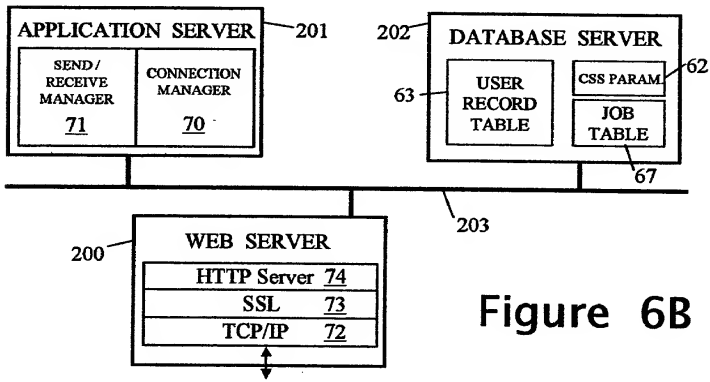

Figure 6B

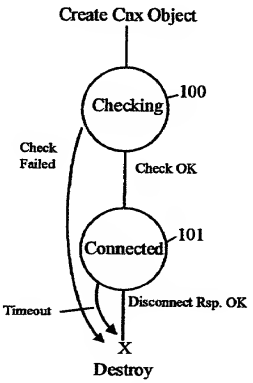

Figure 7

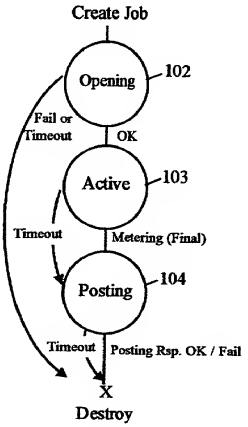

Figure 8

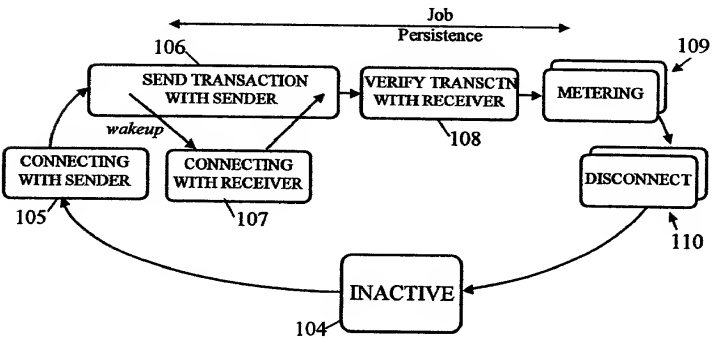

Figure 9

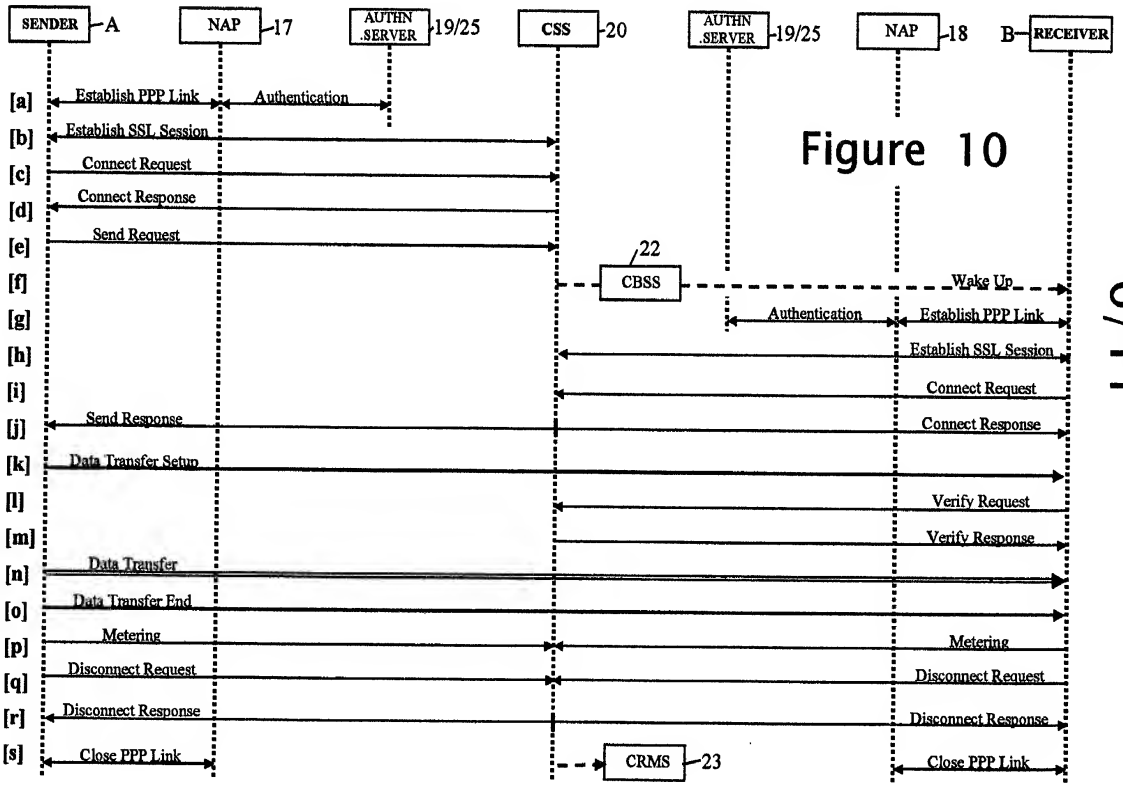
SENDER
A
NAP
17
AUTHN .SERVER
19/25
CSS
20
AUTHN .SERVER
19/25
NAP
18
B
RECEIVER
[a]
Establish PPP Link
Authentication
[b]
Establish SSL Session
[c]
Connect Request
[d]
Connect Response
[e]
Send Request
22
CBSS
[f]
Wake Up
[g]
Authentication
Establish PPP Link
[h]
Establish SSL Session
[i]
Connect Request
[j]
Send Response
Connect Response
[k]
Data Transfer Setup
[l]
Verify Request
[m]
Verify Response
[n]
Data Transfer
[o]
Data Transfer End
[p]
Metering
Metering
[q]
Disconnect Request
Disconnect Request
[r]
Disconnect Response
Disconnect Response
[s]
Close PPP Link
CRMS
23
Close PPP Link

Figure 10

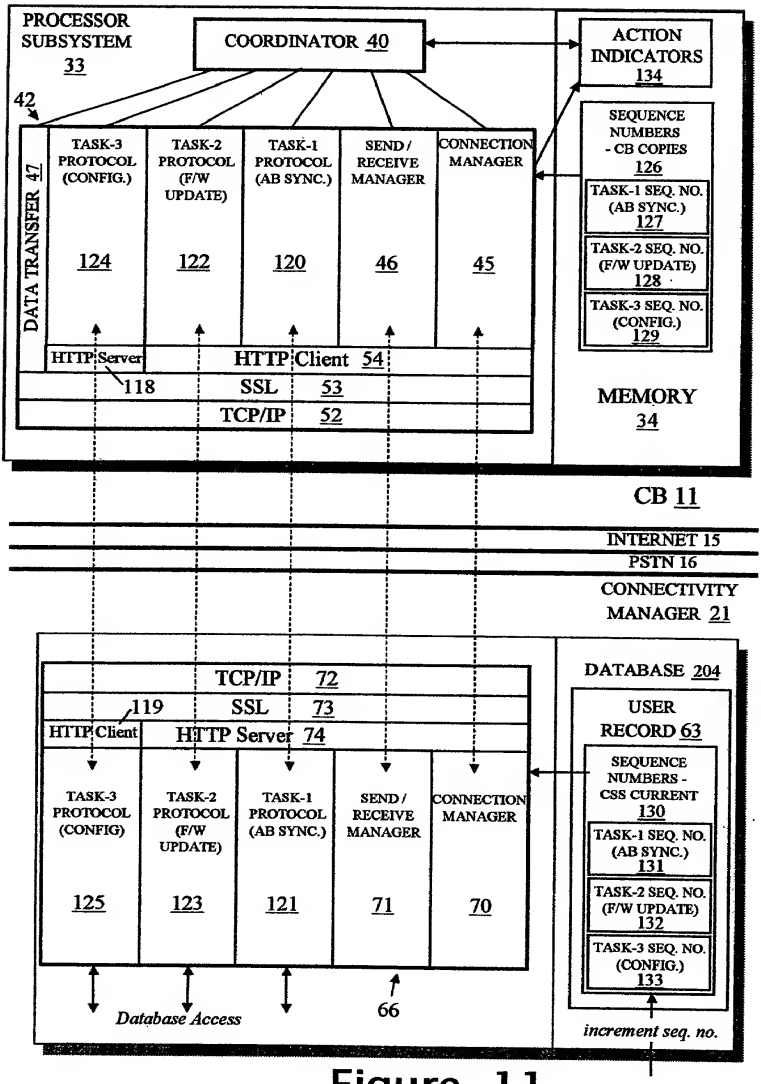
PROCESSOR SUBSYSTEM 33
COORDINATOR 40
ACTION INDICATORS 134
42
DATA TRANSFER 47
TASK-3 PROTOCOL (CONFIG.)
TASK-2 PROTOCOL (F/W UPDATE)
TASK-1 PROTOCOL (AB SYNC.)
SEND / RECEIVE MANAGER
CONNECTION MANAGER
124
122
120
46
45
SEQUENCE NUMBERS - CB COPIES 126
TASK-1 SEQ. NO. (AB SYNC.) 127
TASK-2 SEQ. NO. (F/W UPDATE) 128
TASK-3 SEQ. NO. (CONFIG.) 129
HTTP Server
118
HTTP Client 54
SSL 53
TCP/IP 52
MEMORY 34
CB 11
INTERNET 15
PSTN 16
CONNECTIVITY MANAGER 21
TCP/IP 72
119
SSL 73
HTTP Client
HTTP Server 74
TASK-3 PROTOCOL (CONFIG)
TASK-2 PROTOCOL (F/W UPDATE)
TASK-1 PROTOCOL (AB SYNC.)
SEND / RECEIVE MANAGER
CONNECTION MANAGER
125
123
121
71
70
Database Access
66
DATABASE 204
USER RECORD 63
SEQUENCE NUMBERS - CSS CURRENT 130
TASK-1 SEQ. NO. (AB SYNC.) 131
TASK-2 SEQ. NO. (F/W UPDATE) 132
TASK-3 SEQ. NO. (CONFIG.) 133
increment seq. no.

Figure 11

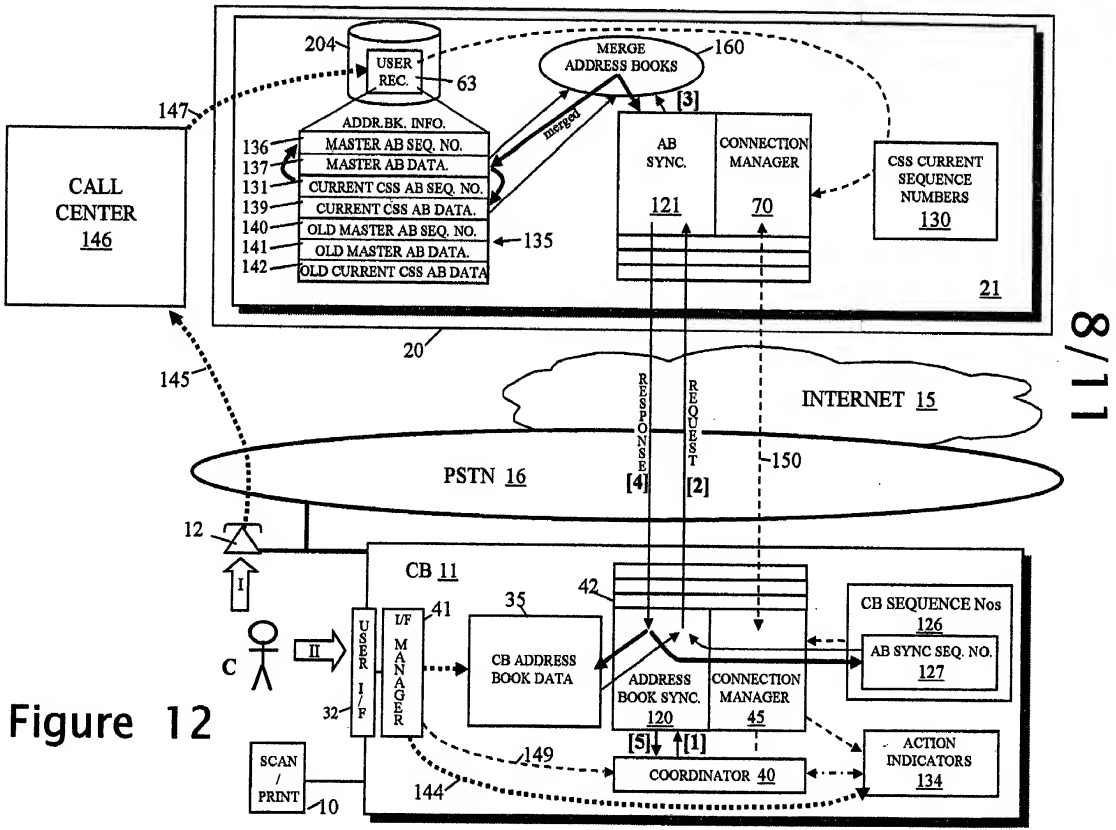
204
USER REC.
63
MERGE ADDRESS BOOKS
160
[3]
147
ADDR.BK. INFO.
136 MASTER AB SEQ. NO.
137 MASTER AB DATA.
131 CURRENT CSS AB SEQ. NO.
139 CURRENT CSS AB DATA.
140 OLD MASTER AB SEQ. NO.
141 OLD MASTER AB DATA.
142 OLD CURRENT CSS AB DATA
135
merged
AB SYNC. 121
CONNECTION MANAGER 70
CSS CURRENT SEQUENCE NUMBERS 130
21
CALL CENTER 146
20
145
INTERNET 15
RESPONSE [4]
REQUEST [2]
150
PSTN 16
12
CB 11
I
II
C
USER I/F 32
I/F MANAGER 41
35
CB ADDRESS BOOK DATA
42
ADDRESS BOOK SYNC. 120
CONNECTION MANAGER 45
CB SEQUENCE Nos 126
AB SYNC SEQ. NO. 127
[5]
[1]
COORDINATOR 40
149
144
ACTION INDICATORS 134
SCAN / PRINT
10

Figure 12

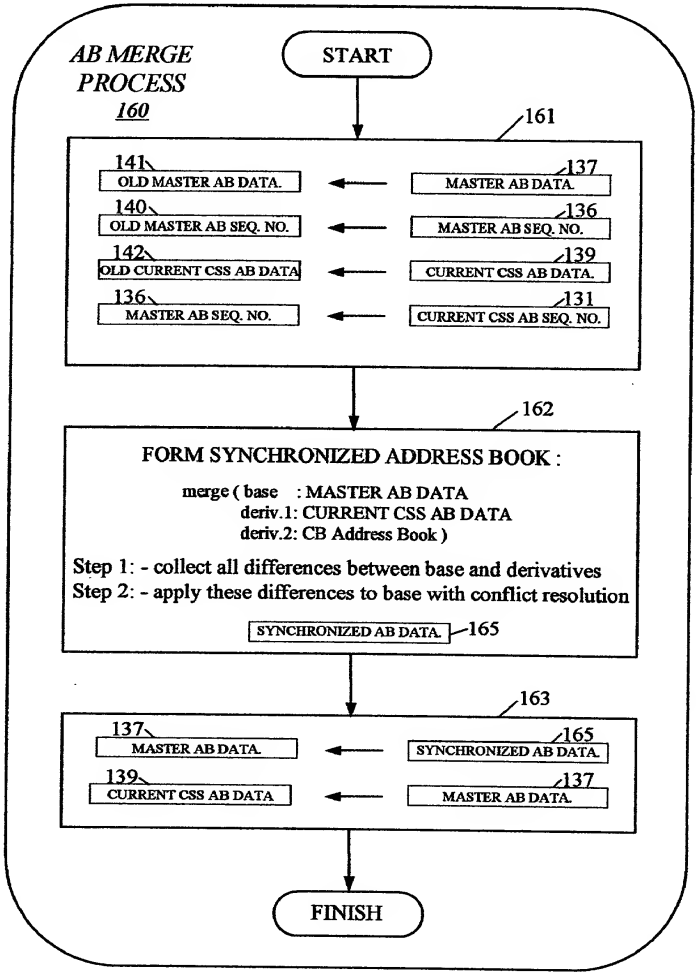
AB MERGE PROCESS
160
START
161
141
OLD MASTER AB DATA.
137
MASTER AB DATA.
140
OLD MASTER AB SEQ. NO.
136
MASTER AB SEQ. NO.
142
OLD CURRENT CSS AB DATA
139
CURRENT CSS AB DATA.
136
MASTER AB SEQ. NO.
131
CURRENT CSS AB SEQ. NO.
162
FORM SYNCHRONIZED ADDRESS BOOK :
merge (base : MASTER AB DATA
deriv.1: CURRENT CSS AB DATA
deriv.2: CB Address Book)
Step 1: - collect all differences between base and derivatives
Step 2: - apply these differences to base with conflict resolution
SYNCHRONIZED AB DATA.
165
163
137
MASTER AB DATA.
165
SYNCHRONIZED AB DATA.
139
CURRENT CSS AB DATA
137
MASTER AB DATA.
FINISH

Figure 13

Initial Master Address Book	
CB Name	CB Friendly Name
XXX123	Mum
XXX124	Phil
XXX156	Lyv
XXX897	Daniel
XXX898	Luis
XXX645	Uncle Tom
XXX765	Uncle Ted

Line 1
Line 2
Line 3
Line 4
Line 5
Line 6
Line 7

Figure 14A

Current CSS Address Book	
CB Name	CB Fr. Name
XXX123	Mum
XXX124	Paul
XXX156	Lyv
XXX897	Daniel
XXX645	UncleTom

CB Address Book	
CB Name	CB Fr. Name
XXX123	Mum
XXX124	Phil
XXX897	Daniel
XXX156	Lyv
XXX765	UncleTeddy

Figure 14B

Differences		
CBName	Operation	By
XXX124	modified	CSS
XXX156	moved	CB
XXX898	deleted	CSS
XXX898	deleted	CB
XXX645	deleted	CB
XXX765	deleted	CSS
XXX765	modified	CB

Figure 14C

Final Master Address Book	
CB Name	CB Friendly Name
XXX123	Mum
XXX124	Paul
XXX897	Daniel
XXX156	Lyv

Figure 14D

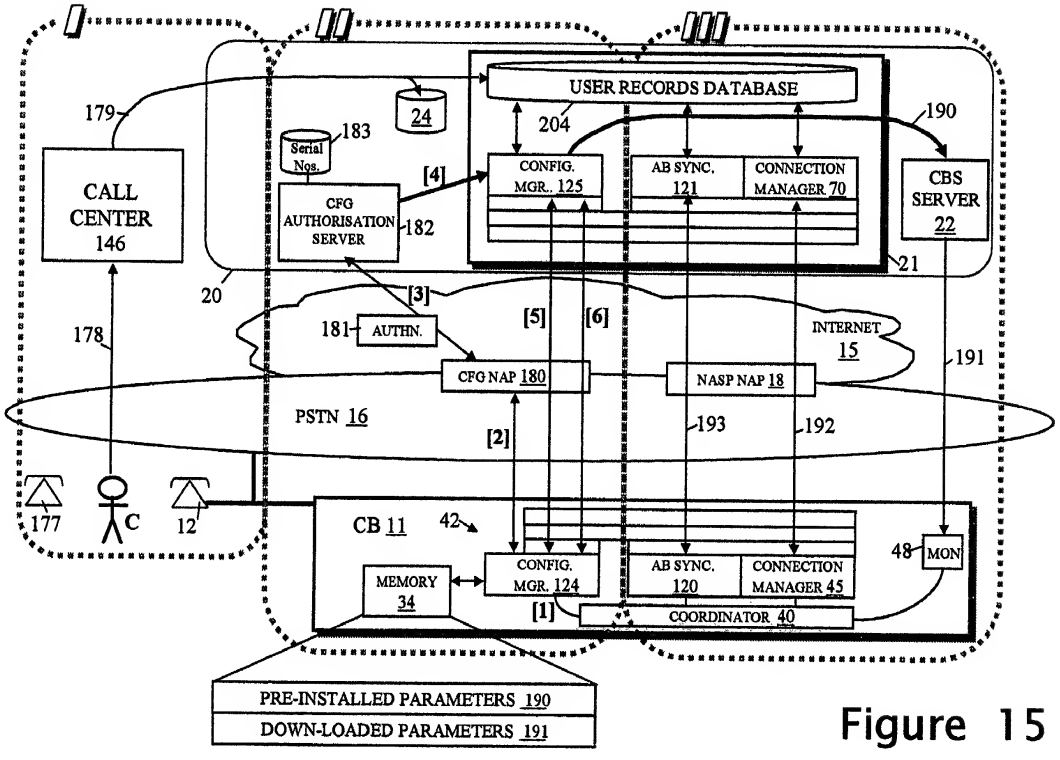
USER RECORDS DATABASE
24
204
190
179
183
Serial Nos.
CONFIG. MGR., 125
AB SYNC. 121
CONNECTION MANAGER 70
CBS SERVER 22
CALL CENTER 146
[4]
CFG AUTHORISATION SERVER
182
21
20
[3]
[5]
[6]
INTERNET 15
181
AUTHN.
178
191
CFG NAP 180
NASP NAP 18
PSTN 16
193
192
[2]
177
C
12
CB 11
42
48
MON
MEMORY 34
CONFIG. MGR. 124
AB SYNC. 120
CONNECTION MANAGER 45
[1]
COORDINATOR 40
PRE-INSTALLED PARAMETERS 190
DOWN-LOADED PARAMETERS 191

Figure 15